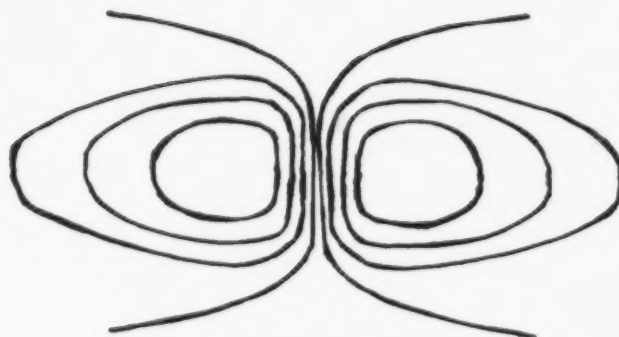


Science

Alberta Authorized Resource List and Annotated Bibliography

Science 14–24



November 2005

*The complete draft document is available online at
http://education.gov.ab.ca/k_12/curriculum/bySubject/science*

ALBERTA EDUCATION CATALOGUING IN PUBLICATION DATA

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Learning and Teaching Resources Branch, Alberta Education. Telephone: 780-427-2984,
Fax: 780-422-0576. To be connected toll free inside Alberta, dial 310-0000.

The primary intended audience for this document is:

<i>Administrators</i>	☐
<i>Counsellors</i>	☐
<i>General Audience</i>	☐
<i>Parent School Councils</i>	☐
<i>Parents</i>	☐
<i>Students</i>	☐
<i>Teachers</i>	☒

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 11th Floor, 10044 - 108 Street
 Edmonton, Alberta T5J 5E6

OVERVIEW

Alberta Education Authorized Resource Categories

This list of Science 14–24 resources, contains resources that have been authorized for use in Alberta schools. Alberta Education selects and authorizes the best possible instructional materials for the implementation of approved programs of study. The resource authorization categories are **student basic**, **student support** or **teaching**, and the status is noted for each resource.

Student Basic learning resources are those student learning resources authorized by Alberta Education as the most appropriate for addressing the majority of outcomes of the course(s) or substantial components of the course(s); or the most appropriate for meeting general outcomes across two or more grade levels.

Student Support learning resources are those student learning resources authorized by Alberta Education to assist in addressing some of the outcomes of the course(s) or components of the course(s); or to assist in meeting the outcomes across two or more grade levels.

Teaching resources are those teaching resources identified as the best available resources to support the implementation of programs of study and courses; they may be teacher guides to accompany student resources or teacher professional resources. The authorized teaching guides are listed with the student resources.

The list of these resources is organized by grade and by unit (Unit A to Unit D) within each grade.

Note:

Alberta Education strongly recommends that teachers read all selections in the student resources and all activities in the teacher guides prior to using them with students. Careful consideration should be given to the sensitivities of both the student audience and the community.

Annotated Bibliography

Annotations for Science 14–24 resources are included in alphabetical order at the end of each grade. The annotations identify the grade(s) and unit(s) the resource is authorized for, a brief description of content, publisher, copyright date and purchasing information.

Availability

Most of the new Alberta resources are available for purchase from:

Learning Resources Centre
12360 – 142 Street, Edmonton, AB T5L 4X9
Telephone: 780-427-5775
Fax: 780-422-9750
Internet: <<http://www.lrc.education.gov.ab.ca>>

LRC order numbers and prices (as of the printing of this booklet) are included for each resource.

Those resources which must be purchased directly from the vendor/distributor are so noted on the authorized list and on the annotation. A listing of vendors/distributors is provided at the end of this booklet.

Authorized Science Resources

Note:

For a **complete** list of Science 14–24 resources, consult the Learning Resources Centre *Buyers Guide*. Some of the older resources will be withdrawn from authorized status in the year(s) ahead.

Science

Authorized Resource List and Annotated Bibliography (Alphabetically by Title) Science 14

November 2005



SCIENCE 14

Units A, B, C, D

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
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Basic Learning Resources

This custom-developed student text, with integrated multimedia CD-ROM, provides direct support for the Science 14 program. The CD-ROM consists of ten interactive learning modules that complement topics addressed in the textbook.

The Teacher's Resource CD-ROM is designed to assist teachers in implementing the Science 14 program. It aligns with the Science.Connect 1 basic resource produced by this publisher. Features include planning guides, assessment rubrics, answers to questions and blackline masters. All components can be edited to provide flexibility.

Science.Connect 1 (Student Text and CD-ROM)	2002	Basic 14A / 14B / 14C / 14D	470972	\$67.75 LRC
Science.Connect 1: Teacher's Resource CD-ROM	2002	Authorized Teaching 14A / 14B / 14C / 14D		LRC
		Science.Connect 1: Teacher's Resource on CD-ROM (Site License)	470980	\$490.00
		Science.Connect 1: Teacher's Resource (Print)	480848	\$120.00

SCIENCE 14

Unit A – Investigating Properties of Matter

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
Support Learning Resources				
 Atomic Structure and the Periodic Table <i>Physical Science Series Series</i>		Support 14A	607054	\$69.50 LRC
 Introduction to Biotechnology - Videoactive	2001	Support 14A	BPN 20740	01 ACCESS-The Education Station
 Matter: Form and Substance in the Universe (with Teacher's Guide) <i>Survey of Science Series: Chemistry Essentials Series</i>	1996	Support 14A		LRC
		Matter: Form and Substance in the Universe (CD-ROM)	620733	\$57.90
		Matter: Form and Substance in the Universe (DVD)	620709	\$81.05
 Mixtures and Solutions (Video, Teacher's Guide, Pre-Test, Post-Test) <i>Physical Science Series</i>	1998	Support 14A	508715	\$69.50 LRC
Reactivity of Elements <i>Science Key Concepts: Chemistry Series</i>		Support 14A	513243	\$69.50 LRC
 Science Lab Safety	1998	Support 14A, 14B, 14C, 14D	BPN 20638	01 ACCESS-The Education Station
Separating Mixtures: Size, Crystallization, Chromatography, Gravity, Sieving, etc.	1995	Support 14A	519770	\$79.95 LRC
Authorized Teaching Resources				
The Flow of Matter and Energy (Video and Teacher's Guide) <i>Biology: The Science of Life Series</i>	2000	Authorized Teaching 14A / 14C / 14D	BPN 20548-01	ACCESS-The Education Station
 WHMIS: Right to Know (Windows Version 1.1)	1998	Authorized Teaching 14A		Pending

SCIENCE 14

Unit B – Understanding Energy Transfer Technologies

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
Support Learning Resources				
Biomass Energy	1981	Support 14B / 14D	521311	\$57.90 LRC
 Energy from Earth's Interior (Volume 12 - Issue 1) <i>Science Screen Report for Kids Series</i>	2002	Support 14B	606709	\$57.90 LRC
 Energy: Electricity from the Moon (Volume 31, Issue 2) <i>Science Screen Report Series</i>	2001	Support 14B	606692	\$57.90 LRC
 Energy: Heat Beneath Our Feet (Volume 30, Issue 2) <i>Science Screen Report Series</i>	2000	Support 14B	606717	\$57.90 LRC
Harness the Wind; The Solar House; Bate's Car: Sweet as a Nut; Bill Loosely's Heat Pump <i>A World of Energy 2 Series</i>	1987	Support 14B	485682	\$57.90 LRC
 Heat and the Changing States of Matter (DVD) <i>The Physics Essentials CD-ROM Series Series</i>	2000	Support 14B	547341	\$81.05 LRC
 Renewable Energy: The Search for Endless Energy (with Teacher's Notes)	1999	Support 14B	BPN 20617	ACCESS-The Education Station
 Science Lab Safety	1998	Support 14A, 14B, 14C, 14D	BPN 20638	ACCESS-The Education Station
Authorized Teaching Resources				
Lever, Wheel and Axle, Pulley (Revised) (with Instructor's Guide and Pre-Test) <i>Work, Energy, and the Simple Machine Series</i>	2001	Authorized Teaching 14B	513300	\$69.50 LRC

SCIENCE 14

Unit C – Investigating Matter and Energy in Living Systems

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
Support Learning Resources				
 Cell Processes	2002	Support 10C / 14C	BPN 20619	ACCESS–The Education Station
Cells and Tissues <i>Science Key Concepts: Biology Series</i>		Support 14C	478273	\$69.50 LRC
 Science Lab Safety	1998	Support 14A, 14B, 14C, 14D	BPN 20638	ACCESS–The Education Station
Authorized Teaching Resources				
The Flow of Matter and Energy (Video and Teacher's Guide) <i>Biology: The Science of Life Series</i>	2000	Authorized Teaching 14A / 14C / 14D	BPN 20548-0	ACCESS–The Education Station
The Living Cell <i>Biology: The Science of Life Series</i>	2000	Authorized Teaching 14C	BPN 20548-0	ACCESS–The Education Station
Photosynthesis (with Teacher's Guide) <i>The World of Plants Series</i>		Authorized Teaching 14C	513251	\$69.50 LRC
Photosynthesis: Light into Life (Videocassette with Teacher's Guide)	1997	Authorized Teaching 14C		Out-of-print

SCIENCE 14

Unit D – Investigating Matter and Energy in the Environment

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
Support Learning Resources				
Biomass Energy	1981	Support 14B / 14D	521311	\$57.90 LRC
Burns Bog: A Road Runs Through It	1999	Support 14D	468018	\$57.90 LRC
Managing Our Resources <i>Forests of the World Series</i>	1993	Support 14D	513235	\$69.50 LRC
 The Prairies <i>Water Under Fire Series</i>		Support 14D	BPN 20624 03	ACCESS–The Education Station /
 Science Lab Safety	1998	Support 14A, 14B, 14C, 14D	BPN 20638 01	ACCESS–The Education Station
Wild Goose Chase		Support 14D	521402	\$57.90 LRC

Authorized Teaching Resources

Ecosystems: Organisms and their Environment (with Teacher's Guide) <i>Elements of Biology Series</i>	2002	Authorized Teaching 14D	513227	\$69.50 LRC
The Flow of Matter and Energy (Video and Teacher's Guide) <i>Biology: The Science of Life Series</i>	2000	Authorized Teaching 14A / 14C / 14D	BPN 20548-01	ACCESS–The Education Station

Science 14: Annotated Bibliography (alphabetical listing)

Atomic Structure and the Periodic Table *Physical Science Series* Support Resource

LRC Order No.: Est. Price:
607054 \$69.50

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓			

There are distinct differences between diamond and glass but how does one account for these differences. The answer lies in the atoms that make up the two substances. This video presents an explanation of how the properties of matter change with component atoms. It presents an explanation of atomic structure based on current understanding and behaviour of matter and shows how atoms differ from one element to another. It describes the subatomic particles, electrons, protons, and neutrons and explains their arrangement in atoms. A distinction is made between atomic number and atomic mass which leads to the concept of isotope. The arrangement of elements on the Periodic Table is explained in terms of families and periods, metals and nonmetals and metalloids. The video culminates with a "fill in the blank" student quiz. Animations and graphics are simple but effective and the content is presented in terms that Science 14 student would understand.

Biomass Energy
Support Resource
© 1981

521311 \$57.90

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
	✓		✓

Biomass energy, as a renewable alternative to oil and other non-renewable energy sources, has been under research and development for over 20 years. This video explains the potential of Canada's vast forests as a source of biomass energy, illustrating production and conversion techniques. A brief explanation of how urban wastes could be used for biomass energy production is also included. Produced in 1981, this video is narrated by science broadcaster Bob McDonald, who might be familiar to students from the media exposure he receives. The resource makes numerous predictions about the future potential for biomass energy production. More than 20 years later, are we there yet? This is a good question to discuss after showing this video to students.

Burns Bog: A Road Runs Through It **Support Resource**

© 1999

LRC Order No.: Est. Price:
468018 \$57.90

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
			✓

Burns Bog, located on the southern fringes of Vancouver, is a rare ecosystem that is home to nearly 200 species of mammals and birds. Unfortunately, it is faced with imminent destruction as the area's growing human population encroaches on the bog's edges. This visually appealing 24-minute video provides an in-depth exploration of this diverse ecosystem and the dilemma of protecting this environment versus meeting the needs of a growing population.

Cell Processes **Support Resource**

© 2002

Available at ACCESS-The Education Station
BPN 20619 01

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
		✓	

Explore the microscopic world of cells and discover the complexity of their internal structure. This video presents a marvelous magnified view of living cells in a tadpole's tail, epidermal layer of the *Tradescantia* leaf, and an onion root tip. It dips into pond water to view the single-celled green alga *Chara*, an amoeba with its pseudopods, and *Volvox*, a colonial organism. Through the use of time-lapsed video microscopy, cellular organelles of plant and animal cells are identified and their functions explained with the use of great animation. Pinocytosis, phagocytosis, and cytoplasmic streaming are all shown as they occur in living cells. An excellent demonstration of surface area to volume ratio is performed to explain why cells must remain small. The microscopy and photography in this video are superb.

LRC Order No.: Est. Price:
478273 \$69.50

Cells and Tissues
Science Key Concepts: Biology Series
Support Resource

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
		✓	

This 15-minute video makes effective use of live photography, scanning electron microscope images, and computer graphics to describe the basic structures and functions of cells. Plant and animal cells are explained and compared; however, more images of plant cells are shown. The video includes onion skin photomicrographs, which would help students identify cell parts observed through the microscope in their school lab. Mitosis is explained, and meiosis is briefly covered. The concept that tissues consist of groups of similar cells functioning together is introduced. The brief teacher notes include links to Internet sites that provide additional information on cells and tissues; however, these sites have not been reviewed or authorized by Alberta Learning.

Ecosystems: Organisms and their Environment (with Teacher's Guide)

513227 \$69.50

Elements of Biology Series
Authorized Teaching Resource

© 2002

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
			✓

This fast paced, visually appealing video covers a variety of concepts relating to ecosystems. The resource discusses how organisms live in communities of plants, animals and microorganisms that interact interdependently in their environment. Food webs and food pyramids are used to discuss the flow of energy. The water, carbon, and nitrogen cycles are introduced. The last segment of the video focuses on human impact on ecosystems and some of the serious environmental problems that face us today. A teacher's guide with a variety of activities as well as pre- and post-tests accompanies the video.

LRC Order No.: Est. Price:
606709 \$57.90

Energy from Earth's Interior (Volume 12, Issue 1) **Science Screen Report for Kids Series**

Support Resource

© 2002 Author(s): Greenspan, D.

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
	✓		

We are quite familiar with the commonly used nonrenewable energy sources such as gasoline and kerosene, both byproducts of petroleum. This video provides an opportunity to explore alternate sources of energy with a focus on geothermal energy and it's origins. It begins earth's history with a look at how the solar system may have formed and the ultimate formation of a liquid core, which currently is the source of all geothermal energy. This energy escapes through hot spots, notably geysers and hot springs, where it can be harnessed to generate electricity. Alternatively, water can be pumped down into these hot springs in the earth's crust to generate steam which is brought back up to drive power turbines. The video also does a survey of all other renewable forms of energy which will become more and more important to us as we run out of petroleum.

606692 \$57.90

Energy: Electricity from the Moon (Volume 31, Issue 2) **Science Screen Report Series**

Support Resource

© 2001

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
	✓		

As we deplete the nonrenewable sources of fossil fuels, other renewable sources of energy will become more and more vital to our survival. This video identifies tidal power as an alternative source of energy that can be harnessed to produce electricity. Along with solar and geothermal energy, this energy source has not been exploited to full potential in meeting our energy needs. Using segments of exceptional animation, the video explains the production of tides as a gravitational interaction between the earth and the moon and how this energy can be harnessed to generate electricity. It goes through a tidal power generating station showing how the energy of tidewater can be economically trapped and then converted into electricity.

LRC Order No.: Est. Price:
606717 \$57.90

Energy: Heat Beneath Our Feet (Volume 30, Issue 2)
Science Screen Report Series
Support Resource

© 2000

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
	✓		

North America, with its enormous energy demand, will have to look at alternative sources of energy as nonrenewable fossil fuels begin to run out later this century. This video looks at the potential of geothermal energy as one major source of renewable energy for the future. Compared to wind, nuclear, biomass, and solar power, geothermal energy may be the next large scale energy source on this planet. Heat from the interior of the earth does concentrate in regions of the earth's crust where water is available, producing geothermal reservoirs called hot springs and geysers. Steam from these can be harnessed to generate electricity but such reservoirs are few in number. In recent years, regions of hot dry rock have been discovered in the earth's crust which have the potential to generate steam if water is injected. The video explains the research that is going on with these geothermal hotspots and how they might be harnessed to produce steam for power generation on the surface. If successful this may become a major source of power in the future.

The Flow of Matter and Energy (Video and Teacher's Guide)
Biology: The Science of Life Series
Authorized Teaching Resource

© 2000

Available at ACCESS-The Education Station
BPN 20548-01

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓		✓	✓

This video examines how matter and energy flow through the "living world," connecting all living organisms. The video focuses on photosynthesis, cell respiration and food chains. The resource also provides a brief review of basic concepts related to matter, elements, atoms, molecules, chemical bonds and chemical compounds, tying previously learned material from Units A and C of Science 14 into Unit D: Investigating Matter and Energy in the Environment. A variety of clips of living organisms enhance the visual appeal of the video. The teacher's guide provides pre- and post-tests as well as follow-up activities.

LRC Order No.: Est. Price:

485682 \$57.90

Harness the Wind; The Solar House; Bate's Car: Sweet as a Nut; Bill Loosely's Heat Pump

A World of Energy 2 Series

Support Resource

© 1987

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
	✓		

During the first half of this 48-minute video, the alternate energy possibilities of wind energy extraction and solar home heating design are thoroughly explored through detailed animations. The third and fourth segments of the video examine the efforts of two inventors to develop and use biomass and solar heat pump technologies as small-scale alternatives to petroleum fuels for motor vehicles and home heating. Although the video was produced by the National Film Board of Canada in 1987, much of the material is still relevant within a science and technology emphasis. However, more recent information on alternative energy will need to be provided as a supplement.

Heat and the Changing States of Matter (DVD)

The Physics Essentials CD-ROM Series Series

Support Resource

© 2000

547341 \$81.05

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
	✓		

This DVD deals with the topics of temperature, heat and thermal energy, potential energy and conservation of energy, heat and states of matter, solid and liquid, gas and plasma, heat and fusion, heat of vaporization, expansion and contraction, heat capacity, transferring thermal energy, conduction, convection and radiation, thermal conductance, heat and other forms of energy.

Introduction to Biotechnology - Videoactive**Support Resource**

© 2001

Available at ACCESS-The Education Station
BPN 20740 01

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓			

This 31-minute video provides students with background information on cells, meiosis and mitosis and then introduces biotechnology. A short quiz follows each section. The scientists interviewed provide a good argument for the continued use and research into cloning, transgenic cells, agrobacterium and bioreader systems. The negative side of this issue is very briefly touched on at the end of the video. This resource adopts a strong technological perspective in presenting a variety of biotechnology practices and developments. Presenters of the video will want to draw attention to other perspectives, including ethical.

Lever; Wheel and Axle; Pulley (Revised) (with Instructor's Guide and Pre-Test)**Work, Energy, and the Simple Machine Series****Authorized Teaching Resource**

© 2001

513300 \$69.50

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
	✓		

This 16-minute video effectively describes and explains levers, the wheel and axle, and pulleys, and provides everyday examples of how these devices are applied. Each of these simple machines is discussed in detail with videos of real world examples and computerized graphical animations to support the presentation. A complete teacher support package with numerous blackline masters is included. Note that the video does not completely develop the relationship of force and distance to work; this aspect will need to be supplemented by the teacher.

The Living Cell
Biology: The Science of Life Series
Authorized Teaching Resource

© 2000

Available at ACCESS-The Education Station
 BPN 20548-02

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
		✓	

This 15-minute video is an excellent resource for providing basic information on cell structure and function. The video uses live-action video and computer animation to explain photosynthesis and cellular respiration, relating them to cell function and structure. It also introduces other functions of the cell, including repair and reproduction. There is an accompanying teacher's guide that contains the narrated script, pre- and post-tests and blackline masters. The vocabulary list and crossword activities are useful enrichment materials if time permits.

Managing Our Resources
Forests of the World Series
Support Resource

© 1993

513235 \$69.50

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
			✓

This 27-minute video covers a range of topics related to forestry, including tree farming and ecosystem management. It briefly explores the effects of logging on organism populations, and also touches on how vital chemical resources are extracted from certain trees for use in medicines. This resource takes a world-view of forests and could be used for a more in-depth study of forestry.

LRC Order No.: Est. Price:

620733 \$57.90

(CD-ROM)

620709 \$81.05

(DVD)

Matter: Form and Substance in the Universe (with Teacher's Guide)

Survey of Science Series: Chemistry Essentials Series

Support Resource

© 1996

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓			

Explore the forms of matter and how it is categorized into classes and subcategories according to chemical and physical properties. This video looks briefly at solutions, elements, and compounds and discusses a variety of physical properties of matter, including mass, density, weight, and inertia. As well, some unique properties are presented including conductivity, solubility, and malleability. Chemical properties of matter center around reactivity, flammability, acidity/alkalinity, and combustibility. The four states of matter are explained in relation to elements on the periodic table and how change in state affects density and other properties of matter. Included are a Teacher's Guide with video narrative, suggested discussion questions, study questions, and a crossword puzzle. This resource provides a good review of matter and its properties.

Mixtures and Solutions (Video, Teacher's Guide, Pre-Test, Post-Test)

Physical Science Series

Support Resource

© 1998 Author(s): Jerome, B. (Guide)

508715 \$69.50

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓			

There are thousands of types of substances, but for practical purposes, they are classified into defined categories based on their chemical and physical properties. Two such groupings are solutions and mixtures. This video describes mixtures using a variety of examples and distinguishes between heterogeneous and homogeneous forms. It goes on to describe colloids, suspensions and solutions, giving the physical properties that characterize each type of mixture. Using examples, it defines and explains the terms solute, solvent, saturation, and solubility. It looks at factors that affect the rate of dissolving and points out the inverse relationship between temperature and solubility of gases in water. It culminates with a summary that highlights the major points presented and finishes with a "fill in the blank" quiz for students.

LRC Order No.: Est. Price:
513251 \$69.50

Photosynthesis (with Teacher's Guide)
The World of Plants Series
Authorized Teaching Resource
 Author(s): Colgren, J; Fuqua, P. (Teacher's Guide)

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
		✓	

This 10-minute video examines the role of photosynthesis in providing food and oxygen to living systems. Magnified cross-sectional views of a leaf show the location and importance of stomata and chloroplasts in leaf tissues, while computer animated models illustrate the overall reaction of photosynthesis. The importance of photosynthesis to other organisms is emphasized throughout. Print materials accompanying the video include a pre-test, quiz, crossword and supplementary laboratory activities.

Photosynthesis: Light into Life (Videocassette with Teacher's Guide)
Authorized Teaching Resource
 © 1997

Out-of-print

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
		✓	

Discover what makes photosynthesis the essential part of the cycle of life. Plants are natural solar collectors, converting solar energy into a usable form for themselves and all other forms of life. This video uses colour animation, live-action photography and diagrams to enhance visual learners' understanding of the vital energy-giving process of photosynthesis, as well as the energy releasing process of cellular respiration. Chemical equations for both processes are reviewed and the importance of glucose and oxygen are highlighted. The video examines leaf and chloroplast structure to show the role of chlorophyll and other pigments in trapping sunlight. Both light and dark reactions are clearly explained with just enough biochemistry to make logical sense of each process. A teacher's guide is included with a program summary and student activities. This resource is also authorized for Biology 20.

**The Prairies
Water Under Fire Series
Support Resource**

Available at ACCESS-The Education Station
BPN 20624 03

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
			✓

The use of water for a variety of human activities has impacted water quality and has altered the environment. Part one of this two part video analyzes the effects of water usage by the tar sand operations in northeastern Alberta, and takes a critical look at the impact of the Bennett Dam on the delta region of Lake Athabasca. Also assessed is the impact of chemical contaminants released into the surface water by the mining industry in the Northwest Territories and the melting of the permafrost due to global warming. Part 2 of this resource explores the effects of human activities on the water in specific regions of eastern Canada. Effluent released by pulp mills into the St. John River and contamination of ground water by agricultural operations in Prince Edward Island are presented in some detail. Focus is given to agricultural practices in the Annapolis Valley of Nova Scotia which have had a significant effect on water quality and quantity of available water. Water purification systems of major centers such as Halifax are also looked at from the perspective of water quality degradation. This resource support the Science 14 Program, Unit D: Investigating Matter and Energy in the Environment.

Reactivity of Elements

**Science Key Concepts: Chemistry Series
Support Resource**

513243 \$69.50

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓			

This 15-minute video explores the reactivity of elements and their placement on the periodic table. The video is divided into three parts. Part 1 examines the reactivity of the alkali metals; part 2 examines the reactivity of the halogens; and part 3 explores the range of reactivity among metals. Various chemical reactions, along with their reaction equations, are shown in order to demonstrate to students the trends in reactivity. Computer animation is used to illustrate the placement of elements and reactivity trends on the periodic table. The accompanying print material includes background information, suggested discussion questions, and two possible experiments.

LRC Order No.: Est. Price:

Renewable Energy: The Search for Endless Energy (with Teacher's Notes)

Support Resource

© 1999

Available at ACCESS-The Education Station
BPN 20617 01

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
	✓		

Today nonrenewable energy sources such as gasoline power our cars and vehicles of transport. The burning of fossil fuels is changing our atmosphere and may be contributing to global warming. This video focuses on other alternate sources of energy, which must begin to play a more dominant role in providing energy for the 21st Century. It presents a comprehensive look at the current technological developments connected with harnessing solar energy. In layman's terms it explains the structure of the solar cell and how it works. It also explores solar dishes that concentrate solar energy to drive the Vanadium Redox battery and the Ammonia Dissociation generator. The video also surveys other renewable forms of energy that will become more and more important as we run out of petroleum and assesses each in terms of energy payback relative to the cost involved.

LRC Order No.: Est. Price:
470972 \$67.75
470980 \$519.75
480848 \$120.00

- **Science.Connect 1 (Student Text and CD-ROM)** (Windows / Macintosh Version))
- **Science.Connect 1: Teacher's Resource on CD-ROM** (Site License)
- **Science.Connect 1: Teacher's Resource (Print)**

Basic / Authorized Teaching Resource

© 2002 Author(s): Colbourne, H. et al.

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓	✓	✓	✓

This custom-developed student text, with integrated multimedia CD-ROM, provides direct support for the Science 14 program. The text features many visuals, hands-on activities, and a simplified reading level. The CD-ROM contains multimedia applets linked to particular concepts in the text which may be difficult to teach.

The teacher's resource is designed to assist teachers in implementing the Science 14 program. It aligns with the Science.Connect 1 basic resource produced by this publisher. Features include planning help, background information for teachers, and blackline masters for student activities and assessment.

Science Lab Safety Support Resource

© 1998

Available at ACCESS-The Education Station
BPN 20638 01

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓	✓	✓	✓

The laboratory is an exciting place of discovery but it requires a strict set of behavioral guidelines and knowledge about safety equipment. A student narrator provides a checklist of proper laboratory clothing, outlines safety precautions, and safe handling procedures for working safely in school science laboratory. Use of emergency equipment and rules of conduct and behavior are demonstrated by students as these points are presented. Knowing the location and use of the first aid kit, fire extinguisher, fire blanket, and emergency exits, for example, can be critical in case of emergency. There are rules for handling animals and a set of symbols (not WHMIS) for identifying the dangers associated with specific substances that might be used in the laboratory. WHMIS symbols should be covered as a supplement to this video presentation.

LRC Order No.: Est. Price:

Separating Mixtures: Size, Crystallization, Chromatography, Gravity, Sieving, etc.
Support Resource
 © 1995

519770 \$79.95

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓			

This 22-minute video examines various methods for separating the components of a mixture. It explores the separation of solids, liquids, gases and vapours in a large variety of mixtures. The video's approach is to introduce the method of separation using basic laboratory apparatus and then show the application of the method in an industrial setting. The resource addresses the separation of food particles in grain, partial crystallization in sugar production, chromatography, gravity separation in mineral production, sieving and filtering, and distillation. The video also demonstrates how various methods are used in car recycling and sewage separation. A student worksheet and teacher booklet for pre- and post-viewing are included.

WHMIS: Right to Know (Windows Version 1.1)

Authorized Teaching Resource

© 1998

Pending

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
✓			

This resource provides information on the workplace hazardous material information system (WHMIS). The program explains the rationale for the system, the legal obligations of manufacturers and users of chemicals and hazardous materials, the information provided by the system, and how to use it in case of emergency. The CD contains six modules: Introduction, Classification, Labels, MSDS, Controlling Hazards, and Emergency Situations. There are 36 minutes of video and two hours of audio. The resource can be used as a source of information on the system or for WHMIS training. Included is a test for the assessment of student understanding and WHMIS knowledge.

Wild Goose Chase Support Resource

LRC Order No.: **521402** Est. Price: **\$57.90**

Unit A - Investigating Properties of Matter	Unit B - Understanding Energy Transfer Technologies	Unit C - Investigating Matter and Energy in Living Systems	Unit D - Investigating Matter and Energy in the Environment
			✓

This visually appealing 49-minute video presents an in-depth study of the Canada goose and the arctic-nesting lesser snow goose, exploring the past and present dilemmas surrounding the population of these birds in Canada. At one time the species were threatened almost to the brink of extinction, but we are now presented with a population explosion. With wit and insight, *Wild Goose Chase* tackles this population issue, introduces the "goosebustlers" who are trying to relocate urban geese, and shows how the geese appear to be winning the war.



Science

**Authorized Resource List
and Annotated
Bibliography
(Alphabetically by Title)
Science 24**

November 2005



SCIENCE 24

Units A, B, C, D

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
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Basic Learning Resources

This custom-developed student text, with integrated multimedia CD-ROM, provides direct support for the Science 24 program. The CD-ROM consists of ten interactive learning modules that complement topics addressed in the textbook.

The Teacher's Resource CD-ROM is designed to assist teachers in implementing the Science 24 program. It aligns with the Science.Connect 2 basic resource produced by this publisher. Features include planning guides, assessment rubrics, answers to questions and blackline masters. All components can be edited to provide flexibility.

Science.Connect 2 (Student Text and CD-ROM (Windows / Macintosh Version))	2003	Basic 24A / 24B / 24C / 24D	515596	\$74.95 LRC
Science.Connect 2: Teacher's Resource CD-ROM (Windows Version) (Includes Blackline Masters, ICT Masters, and Assessment Masters)	2003	Authorized Teaching 24A / 24B / 24C / 24D		LRC
		Science.Connect 2: Teacher's Resource on CD-ROM (Site License)	515611	\$490.00
		Science.Connect 2: Teacher's Resource (Print)	519811	\$120.00

SCIENCE 24

Unit A – Applications of Matter and Chemical Changes

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
Support Learning Resources				
 Chemical Reactions <i>Bill Nye the Science Guy Series</i>	1998	Support 24A	BPN 8552 24	ACCESS–The Education Station
 Greenhouse	1990	Support 24A	561721	\$79.95 LRC
Reactions: The Chemistry of Change <i>Survey of Science Series: Chemistry Essentials Series</i>	1996	Support 24A	538803	\$69.50 LRC
Authorized Teaching Resources				
 Reactions: The Chemistry of Change (DVD) <i>The Chemistry Essentials CD-ROM Series Series</i>	2000	Authorized Teaching 24A	538803	\$69.50 LRC

Unit B – Understanding Common Energy Conversion Systems

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
Support Learning Resources				
 Electricity for the Future <i>Physical Science (Scientific Eye) Series</i>	2001	Support 24B	621161	\$69.50 LRC
 Global Warming and the Greenhouse Effect	2001	Support 24B	BPN 20310-01	ACCESS–The Education Station
Simply Science 3: Energy Converters <i>Simply Science Series</i>	1998	Support 24B	BPN 385403	ACCESS–The Education Station
A World of Energy 2 Series (includes Harness the Wind; The Solar House; Bate's Car: Sweet as a Nut; Bill Loosely's Heat Pump) <i>A World of Energy 2 Series</i>	1987	Support 24B	485682	\$57.90 LRC
Authorized Teaching Resources				
Electricity: The Invisible River of Energy (Macintosh / Windows Version 2.0) <i>AIMS Interactive Science Essentials Series</i>	1997	Authorized Teaching 24B	511081	\$81.05 LRC
 Electricity: The Invisible River of Energy: Teaching Module <i>AIMS Interactive Science Essentials Series</i>	1997	Authorized Teaching 24B		LRC / Publisher / Distributor

SCIENCE 24

Unit C – Disease Defense and Human Health

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
Support Learning Resources				
 DNA: Life's Controller <i>Our Human Body Series</i>	1993	Support 24C	620931	\$69.55 LRC
 Part 1: A History of Research to Modern Techniques; Part 2: Gene Technology in Agriculture <i>Gene Technology Series</i>	1999	Support 24C		LRC
	Part 1: A History of Research to Modern Techniques		606931	\$97.35
	Part 2: Gene Technology in Agriculture		606949	\$97.35
 Infectious Diseases: Causes and Controls	2002	Support 24C	561713	\$114.75 LRC
 Microbes and Health <i>Life and Living Processes 3 (Scientific Eye) Series</i>	2000	Support 24C	621145	\$69.50 LRC
 Understanding Basic Genetics	1998	Support 24C	620949	\$126.35 LRC

Authorized Teaching Resources

New resources for Unit C, with potential for
Authorized Teaching status, are under review.

Unit D – Motion, Change and Transportation Safety

Series / Title	Copyright Date	Status / Unit(s)	LRC Order No.	Price
Support Learning Resources				
 Physics of Car Crashes	1997	Support 24D	Pending	LRC

Authorized Teaching Resources

New resources for Unit D, with potential for
Authorized Teaching status, are under review.

Science 24: Annotated Bibliography (alphabetical listing)

LRC Order No.: Est. Price:

Chemical Reactions
Bill Nye the Science Guy Series
Support Resource
© 1998

Available at ACCESS-The Education Station
BPN 8552 24

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
✓			

In his dynamic style, Bill Nye uses explosive examples to show that everything is made of chemicals. In the process, he covers the fundamentals of chemistry, specifically exploring chemical properties and reactions and how chemists describe and represent such changes in matter. He takes viewers through the visual changes and the changes at the molecular level as they occur in combustion, hydrolysis, the chemistry of photography, acids and bases, gold plating, and pyrotechnics. Along the way he covers basic structural representations of molecules and formulae, the work of Alfred Nobel, the periodic table and the concept of endo-exothermic reactions.

DNA: Life's Controller
Our Human Body Series
Support Resource
© 1993

620931 \$69.55

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
		✓	

This life and biological science video describes DNA as the blueprint for how each body is built, body structure and the features and traits a child may inherit from its parents. Using video footage and computer graphics, the video explains the functions of DNA, replication during cell production and the role of DNA in genetics and evolution. It closes by encouraging the students to consider how genetic engineering is benefiting society and the risks.

LRC Order No.: Est. Price:

621161 \$69.50

Electricity for the Future

Physical Science (Scientific Eye) Series

Support Resource

© 2001

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
	✓		

Society in the 21st century has become extremely dependent on electricity as the primary source of energy in homes, business and industry. This dependence is discussed and connected with the exploration of the positives and negatives on nonrenewable and renewable sources of electricity. As a significant part of this discussion, a clear demonstration of how a generator works is included as well as an examination of all alternative fuel supplies and their potential to fill our energy needs.

It should be noted that although this video was produced in the United Kingdom with a British narrator, this does not detract from the message or the quality of the resource.

Electricity: The Invisible River of Energy (Macintosh / Windows Version 2.0) (includes Teaching Module) **511081 \$81.05**

AIMS Interactive Science Essentials Series

Authorized Teaching Resource

© 1997

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
	✓		

This dual platform (Macintosh and Windows) CD-ROM offers a general overview of how electricity works. The resource discusses the following topics: static electricity, current electricity, conductors, voltage, circuits (series and parallel), resistance (Ohms and amperes), switches, circuit breakers, watts, magnetic fields, light, heat, and motors. The CD is set up as a QuickTime video with demonstrations of each concept. A glossary of terms is included and directly linked to the video; when you check a term in the glossary, the QuickTime video automatically starts at the relevant point. A quiz (with immediate feedback) and a test (with feedback at end of the test) are provided. The resource is easily navigated with a menu of options on the left hand side. Icons are large and easily understood. This resource could be used individually, or with a group using a projector.

LRC Order No.: Est. Price:

606931 \$97.35
606949 \$97.35

- Gene Technology Series: Part 1: A History of Research to Modern Techniques
- Gene Technology Series: Part 2: Gene Technology in Agriculture

Gene Technology Series

Support Resource

© 1999

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
		✓	

Part 1 of this two-part video begins with an overview of applied selective breeding and proceeds into the historical development of our current understanding of DNA structure, gene function, and Mendelian inheritance. It culminates with a look at the Human Genome Project and its benefits and introduces the fundamentals of recombinant DNA technology. Part 2 describes genetic engineering in simplified terms and looks at the application of this technology to specific agricultural problems such as browning of fruit and potatoes and production of wool in sheep. Ethical, environmental, and safety issues connected with such gene therapy are discussed with a major focus on genetically modified foods. This video comes with a teacher guide that provides background information, focus and discussion questions as well as timing information to help segment the video.

Global Warming and the Greenhouse Effect

Support Resource

© 2001

Available at ACCESS-The Education Station
BPN 20310-01

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
	✓		

This video provides coverage of the greenhouse effect, greenhouse gases and global warming. It deals with the role of CFC's, carbon dioxide, methane and nitrous oxides in the greenhouse effect and provides global temperature history to put global warming in context. The possible role of human activity on global warming is explored with particular focus on our use of fossil fuels. The projected effects of global warming are explained and shown on a global scale. El Niño and La Niña and their effects of global climate are covered. The energy alternatives of nuclear, solar and wind are mentioned and global cooperative efforts to reduce emissions, like the Kyoto Protocol, are explained. The video concludes with discussion of personal actions a student could take on this issue.

Comments:

- The video is American and has an American focus.

LRC Order No.: Est. Price:
561721 \$80.70

Greenhouse
Support Resource
 © 1990

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
✓			

Rising global temperatures and other measurable changes clearly indicate that greenhouse warming is occurring. This video describes the greenhouse effect in some detail and explains the scientific methods used to establish a baseline of data for determining the extent of climatic change that has occurred in more recent times and the relationship of this change to concentrations of greenhouse gases. It illustrates the use of ice core sampling and other data in producing computer models that explain the correlation between warming and greenhouse gases, particularly CO₂ levels. It also explains how simple mathematical models have developed into useful predictive tools and that the more we learn about the greenhouse problem the more we realize that it is extremely complicated in nature. Segments of the video are quite technical in narrative.

Comments:

- This Australian resource has a Caucasian male bias in its design and production.

LRC Order No.: Est. Price:
561713 \$115.75

Infectious Diseases: Causes and Controls **Support Resource**

© 2002

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
		✓	

Throughout human history infectious diseases have had a devastating effect on civilizations. A quick review of the Black Death plague, AIDS, and hepatitis is used to show impacts on humans worldwide. The video shows how discoveries made by Leeuwenhoek, Jenner, Bassi, and Pasteur each contribute to the link between pathogenic organisms and disease. Their discoveries led to primitive vaccination techniques. A broad range of disease causing agents from macro-parasites to viruses and prions are described along with methods of transmission of the pathogens. Natural and acquired resistance are covered in detail with vaccination explained in the context of Jenner's cowpox discovery. Infectious disease prevention methods and treatment with antibiotics conclude the video. Teacher's notes provide a complete program transcript, key words, introductory activities, discussion questions and topics for further research.

This concise and engaging video covers six of the eight key concepts of Unit C and provides strong STS links.

Comments:

- Teachers should note this resource contains visuals of nude children.
- Also, the treatment of topics such as death and terrorism may be sensitive to some students.

LRC Order No.: Est. Price:
621145 \$69.50

Microbes and Health
Life and Living Processes 3 (Scientific Eye) Series
 Support Resource

© 2000

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
		✓	

The human body has a built-in defense system for destroying pathogenic organisms but we have also found ways to assist this immune system in its response to disease. This video describes how the immune system fights infectious organisms, how these organisms survive in difficult environments, and how the transmission of deadly disease can be prevented. It examines the development of vaccinations and the discovery of antibiotics to help the body to destroy many of these disease causing intruders. It combines both a hard hitting personal example of a young lady contracting meningitis with a light hearted animated sequence on the history of the smallpox vaccine. Other related topics also discussed include the characteristics of bacteria, viruses and fungi, the specific action of white blood cells in response to pathogens, and conditions that favour bacteria growth. The video finishes with a short poetic rap.

Pending

Physics of Car Crashes
 Support Resource

© 1997

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
			✓

Join researchers in their investigation of car crashes and the basic physics that explains what happens. Vehicle crashes recorded with time-lapse photography provide gripping visual evidence of how momentum of bodies and the kinetic energy of vehicles translate into serious damage in collisions at high speeds. The relationships of speed and stopping distance is first demonstrated and then discussed in the context of vehicle impacts. The concept of kinetic energy and its relationship to mass and speed is developed and graphed. The importance of vehicle body design to provide a "crumple zone" which increases stopping distance and decreases the force of impact in collision is clearly demonstrated. The effectiveness of seat belts, air bags, and infant car seats, as protection devices, is shown as crash test dummies undergo sudden stops and experience collisions at various speeds.

LRC Order No.: Est. Price:
538803 \$69.50

Reactions: The Chemistry of Change (DVD)
The Chemistry Essentials CD-ROM Series
 Authorized Teaching Resource

© 2000

 Unit A - Applications of Matter and Chemical Changes ✓	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
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This resource helps students discover the nature of chemical change and its importance to life and everyday events around us. The program looks at common reactions, including photosynthesis and cellular respiration, to demonstrate the difference between endothermic and exothermic types and to show the common properties they share. The effects of temperature, concentration of reactants, and catalysts on rate of reaction are demonstrated. Reactions are categorized into synthesis, decomposition, and replacement reaction types. The concepts of chemical equilibrium and reversibility of reactions are also introduced, and the formation of acid deposition and other reactions in nature are explored in some detail. The resource includes a teacher's guide which provides suggested discussion and study questions, a test for vocabulary and comprehension, and an answer key.

538803 \$69.50

Reactions: The Chemistry of Change
Survey of Science Series: Chemistry Essentials Series
 Support Resource

© 1996

 Unit A - Applications of Matter and Chemical Changes ✓	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
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Discover the nature of chemical change, its importance to life and everyday events around us. This program looks at common reactions, including photosynthesis and cellular respiration, to demonstrate the difference between endothermic and exothermic types and how to show that they share common properties. The effect of temperature, concentration of reactants, and catalysts on rate of reaction is demonstrated. Reactions are categorized into synthesis, decomposition, and replacement reaction types, including neutralization as one example of a double replacement. The concepts of chemical equilibrium and reversibility of reactions are also introduced. The formation of acid deposition and other reactions in nature are explored in some detail.

LRC Order No.: Est. Price:

515596 64.30
515611 490.00
519811 120.00

- Science.Connect 2 (Student Text and CD-ROM) (Windows / Macintosh Version))
- Science.Connect 2: Teacher's Resource on CD-ROM (Site License)
- Science.Connect 2: Teacher's Resource (Print)

Basic / Authorized Teaching Resource

© 2003 Author(s): Colbourne, H. et al.

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
✓	✓	✓	✓

This custom-developed student text, with integrated multimedia CD-ROM, provides direct support for the Science 24 program. The CD-ROM contains multimedia applets linked to specific concepts in the text which may be difficult to teach.

The teacher's resource is designed to assist teachers in implementing the Science 24 program. It aligns with the Science.Connect 2 basic resource produced by this publisher. Features include planning help, background information for teachers, and blackline masters for student activities and assessment.

Simply Science 3: Energy Converters

Simply Science Series

Support Resource

© 1998

Available at ACCESS-The Education Station
BPN 385403

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
	✓		

The Simply Science series introduces the key concepts and principles of change, diversity, energy, equilibrium, matter and systems, and challenges students to identify how their place in the world is affected by the laws of nature and the technology around them. The videos incorporate vibrant images, engaging presenters, graphics, animation and experiments. In *Energy Converters*, a weight room is used to demonstrate how energy must be converted for activity and life functions to occur. Energy efficiency is examined by a sports physiologist and an athlete, and cellular respiration in hibernating animals is discussed by a hibernation expert.

LRC Order No.: Est. Price:
620949 \$126.35

Understanding Basic Genetics
Support Resource
 © 1998

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
		✓	

This video uses a unique and witty format to explore the Mendelian Model of Inheritance. The law of dominance is explained in simple terms along with Mendel's Law of Segregation. The video also explores the causes of physical differences within a particular species and provides the opportunity for students to interpret Punnett squares illustrating dominant and recessive monohybrid crosses. The video provides a basic foundation of knowledge which lends itself to further study in genetics.

A World of Energy 2 Series (includes Harness the Wind; The Solar House; Bate's Car: Sweet as 485682 \$57.90
a Nut; Bill Loosely's Heat Pump)
A World of Energy 2 Series
Support Resource
 © 1987

Unit A - Applications of Matter and Chemical Changes	Unit B - Understanding Common Energy Conversion Systems	Unit C - Disease Defense and Human Health	Unit D - Motion, Change and Transportation Safety
	✓		

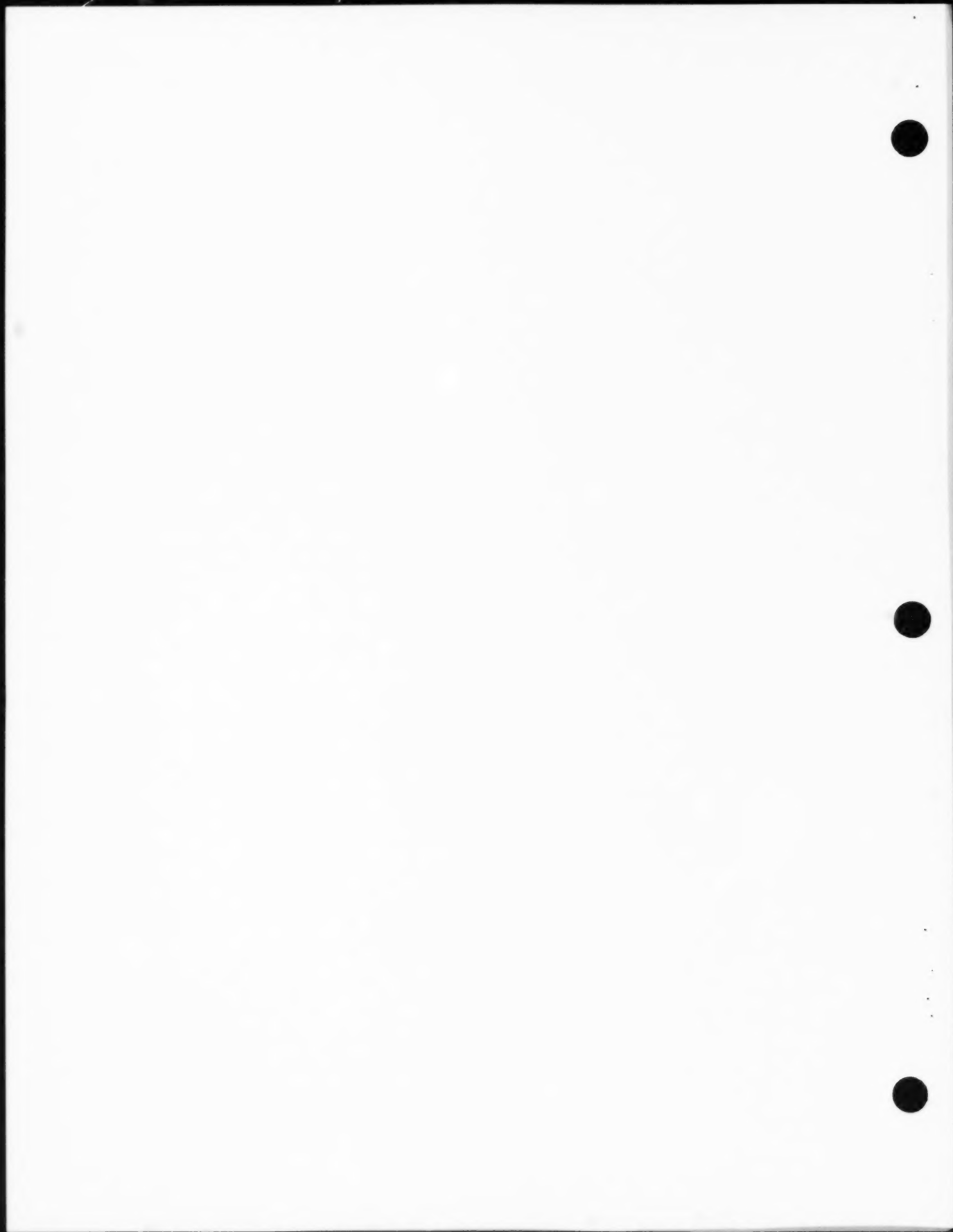
During the first half of this 48-minute video, the alternate energy possibilities of wind energy extraction and solar home heating design are thoroughly explored through detailed animations. The third and fourth segments of the video examine the efforts of two inventors to develop and use biomass and solar heat pump technologies as small-scale alternatives to petroleum fuels for motor vehicles and home heating. Although the video was produced by the National Film Board of Canada in 1987, much of the material is still relevant within a science and technology emphasis. However, more recent information on alternative energy will need to be provided as a supplement.



Science

Vendors/Distributors

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Vendors/Distributors

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